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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,088	02/03/2004	Juan Cartos Minano	3084.021	2569
26375	7590	02/24/2006	EXAMINER	
SINSHEIMER, SCHIEBELHUT, BAGGETT			CHOI, JACOB Y	
1010 PEACH STREET			ART UNIT	
SAN LUIS OBISPO, CA 93401			PAPER NUMBER	
			2875	

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/772,088

Applicant(s)

MINANO ET AL.

Examiner

Jacob Y. Choi

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date Oct 16 2005, Jul 25 2005, Oct 27 2004, May 20 2004, May 17 2004, May 13 2004
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Election/Restrictions***

2. Applicant's election without traverse of group I, claims 1-16 in the reply filed on 1/17/2006 is acknowledged.

### ***Claim Objections***

3. Claims 14 & 15 are objected to because of the following informalities: the term "decentered" does not exist in English language. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

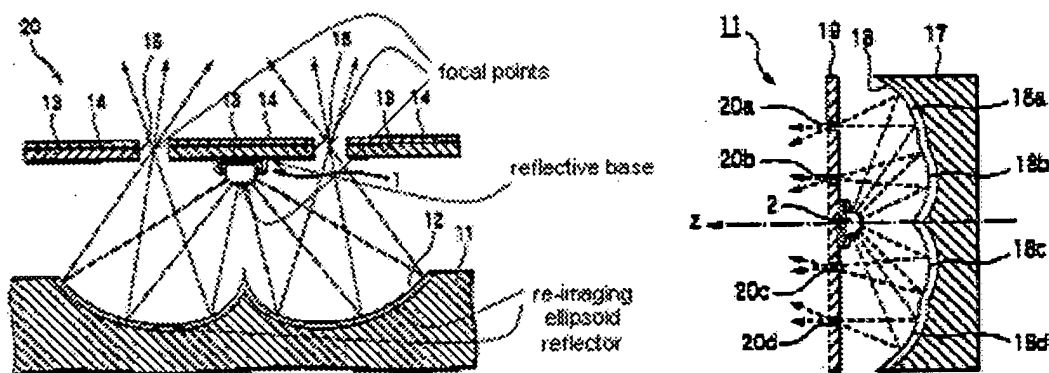
A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claims 1-7, 9, 10, 13 & 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Suehiro (USPN 6,886,962).

Regarding claim 1, Suehiro discloses a reflective base (e.g., 4c and/or 9, 19, 104), a first light source (e.g., 2) positioned proximate the reflective base, and a re-imaging reflector (e.g., 18a-18d) positioned partially about the first light source, where a percentage of light emitted (e.g., "arrows" shown below) from the first light source (Figure 3B) is reflected from the re-imaging reflector (18a-18d) to the reflective base (e.g., 3c and/or 13/14) adjacent the first light source (Figures 3B) establishing a first real image of the first light source (2) adjacent the first light source such that the reflective base (e.g., 4c and/or 9, 19, 104) reflects the light of the first real image (18a-18d).



Note: claims in a pending application should be given their broadest reasonable interpretation. *In re Pearson*, 181 USPQ 641 (CCPA 1974).

Regarding claim 2, Suehiro discloses the re-imaging reflector is generally a quarter ellipsoid (e.g., column 12, lines 20-55; *"the reflecting surface of the reflecting mirror is formed as a cylindrical surface in which a part of an ellipse with the light source .... etc"*) with a first focus (any one of 20a-d; 2<sup>nd</sup> embodiment) positioned on the first light

source and a second focus positioned proximate the first light source at a position of the first real image.

Regarding claim 3, Suehiro discloses the second focus (20; 2<sup>nd</sup> embodiment) is further positioned below the reflective base at a height below a surface of the reflective base equal to a height of a light-emitting surface of the first light source from the surface (e.g., column 12, lines 10-45).

Regarding claim 4, Suehiro discloses the re-imaging reflector comprises a first sector of a first prolate ellipsoid (18; 2<sup>nd</sup> embodiment) and a second sector of a second prolate ellipsoid (18; 2<sup>nd</sup> embodiment; Figure 3B), where the first and second sectors (e.g., 18a-18d) joined along an axis.

Note: prolate - Having the shape of a spheroid generated by rotating an ellipse about its longer axis. Having the polar axis longer than the equatorial diameter: a *prolate spheroid*.

Regarding claim 5, Suehiro discloses a first percentage of the light reflected from the re-imaging reflector (18a-d) is reflected from the first sector to the reflective base (e.g., 4c and/or 9, 19, 104) adjacent the first light source (2) at the first real image of the first light source adjacent the first light source on a first side of the first light source such that the reflective base reflects the light of the first real image, and a second percentage of the light reflected from the re-imaging reflector from the second sector (18a-d) to the reflective base (e.g., 4c and/or 9, 19, 104) adjacent the first light source (2) establishing a second real image of the first light source adjacent the first light source such that the reflective base reflects the light of the second real image (e.g., Figures 3A-B).

Regarding claim 6, Suehiro discloses the first sector of the re-imaging reflector is defined by a first ellipsoid (20; column 12, lines 10-45) having first and second foci (20a-20d), and the second sector (18a-d) of the re-imaging reflector is defined by a second ellipsoid (18a-d; column 12, lines 10-45) having third and fourth foci (20a-d), the first sector is positioned relative to the first light source (2) such that the first focus is positioned on the first light source and the second focus (20a-d) is positioned to the first side of the first light source (2) proximate the first light source (2) at a position of the first real image (e.g., Figures 3A-B), and the second sector (18) is positioned such that the third focus is positioned on the first light source (2) and the fourth focus (20a-d) positioned to the second side of the first light source proximate the first light source (2) at a position of the second real image (e.g., Figure 3A-B).

Regarding claim 7, Suehiro discloses the re-imaging reflector comprises four sectors (18a-18d) distributed along an axis with each of the four sectors (18a-d) defined by four prolate ellipsoids, where a first percentage of light reflected from the re-imaging reflector is reflected by a first sector (18a-d) of the re-imaging reflector to the reflective base at a first side the first light source (2) establishing the first real image of the first light source, and where a second percentage of light reflected from the re-imaging reflector (18a-d) is reflected by a second sector of the re-imaging reflector to the reflective base adjacent the first light source (2) on a second side of the first light source establishing a second real image of the first light source adjacent the first light source such that the reflective base reflects the light of the second real image.

Regarding claim 9, Suehiro discloses a lens (e.g., 11) wherein the first light source (2) is positioned proximate the lens (11) such that the lens receives the light from the first light source and the first real image.

Regarding claim 10, Suehiro discloses the lens (11) comprises the re-imaging reflector (18a-d), and a cavity in which the first light source (2) is positioned.

Regarding claim 13, Suehiro discloses a totally internally reflecting (TIR) lens (e.g., column 12, lines 45-50; "all light emitted from the light source and reflected by the reflecting surface is condensed into the optical opening portion ... etc") positioned proximate the first light source opposite from the re-imaging reflector such that the TIR lens receives light reflected by the first real image.

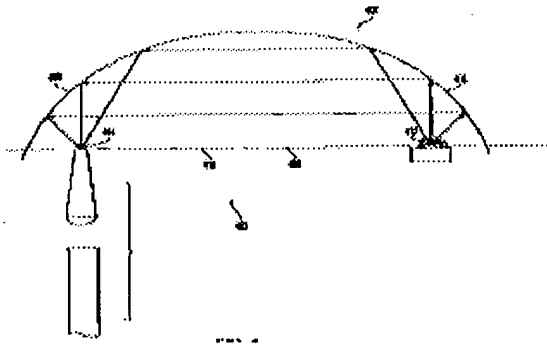
Regarding claim 16, Suehiro discloses the first real image (19; Figures 3A-B) is positioned adjacent the light source (2) but separated from the light source by a gap.

5. Claims 1-3, 8-12, & 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Li (USPN 6,926,435).

Regarding claim 1, Li discloses a reflective base (e.g., 2, 3, 5, 406, 410), a first light source (e.g., 1) positioned proximate the reflective base, and a re-imaging reflector (e.g., 402, 806) positioned partially about the first light source (e.g., Figures 4 & 8), where a percentage of light emitted from the first light source (1) is reflected from the re-imaging reflector (402, 806) to the reflective base (e.g., 2, 3, 5, 406, 410) adjacent the first light source (1) establishing a first real image (e.g., 414, 810) of the first light source

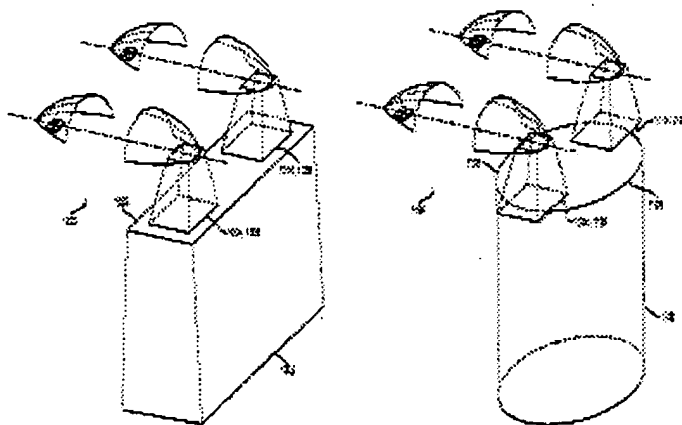
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(1) adjacent the first light source such that the reflective base (e.g., 2, 3, 5, 406, 410) reflects the light of the first real image (414, 810).



Regarding claim 2, Li discloses the re-imaging reflector is generally a quarter ellipsoid (e.g., columns 6-7, lines 55-10; *"the first primary reflector comprises at least a portion of a substantially ellipsoidal surface of revolution ... etc"*) with a first focus (e.g., 414; *"a first secondary reflector having a second optical axis and a second focal point ... etc"*) positioned on the first light source and a second focus positioned proximate the first light source at a position of the first real image.

Regarding claim 3, Li discloses the re-imaging reflector comprises a first sector of a first prolate ellipsoid and a second sector of a second prolate ellipsoid, where the first and second sectors joined along an axis (e.g., Figures 9-13).





Regarding claim 8, Li discloses a tailored free-form exit face positioned at least partially about the light source such that the percentage of light reflected by the re-imaging reflector and light emitted from the source not reflected by the re-imaging reflector is emitted from the exit face establishing an output illumination that meets a predefined prescription.

Regarding claim 9, Li discloses a lens (e.g., 1100, 1200, 1300, 1400) wherein the first light source is positioned proximate the lens such that the lens receives the light from the first light source and the first real image.

Regarding claim 10, Li discloses the lens (e.g., 1100, 1200, 1300, 1400) comprises the re-imaging reflector (e.g., 806, 908), and a cavity in which the first light source (e.g., 802, 804, 912) is positioned.

Regarding claim 11, Li discloses the lens (e.g., 1100, 1200, 1300, 1400) further comprises first reflective surface (e.g., 408) positioned to receive the light from the first light source (412) and the first real image, a reflector (e.g., 404) array positioned to receive light reflected from the first reflective surface (e.g., 408), a mirrored surface (e.g., columns 8-9, lines 65-5; "*a hollow reflective light pipe ... etc*") positioned to receive reflected light from the reflector array, and an output surface (e.g., Figure 4).

Regarding claim 12, Li discloses a lens comprising (e.g., 1100, 1200, 1300, 1400), the re-imaging reflector (408), input surface (e.g., 414) defining a cavity that receives the first light source, reflective fingers (e.g., columns 8-9, lines 65-5; "*a hollow reflective light pipe ... etc*"), reflective folding face, and exit face (light output/projection display).

Regarding claim 16, Li discloses the first real image (e.g., 408) is positioned adjacent the light source (412) but separated from the light source by a gap.

6. Claims 1 & 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Sun et al. (US 2004/0189933).

Regarding claim 1, Sun et al. discloses a reflective base (e.g., 122), a first light source (e.g., 121) positioned proximate the reflective base, and a re-imaging reflector (e.g., 120; [0073] "*planar mirror is positioned to reflect down-going light back up to lens ... etc.*") positioned partially about the first light source (121), where a percentage of light emitted from the first light source (121) is reflected from the re-imaging reflector (122) to the reflective base [0073] adjacent the first light source (121) establishing a first real image of the first light source (121) adjacent the first light source such that the reflective base (122) reflects the light of the first real image.

Regarding claim 13, Sun et al. discloses a totally internally reflecting [0071-0073] lens (e.g., 125) positioned proximate the first light source (121) opposite from the re-imaging reflector (120) such that the TIR lens (125) receives light reflected by the first real image.

Regarding claim 14, Sun et al. discloses the TIR lens having exit face (e.g., 151; preferred embodiment), a central refractive lens, grooved facets having entry faces [0080], and totally internally reflecting faces positioned relative to the grooved entry faces to receive light entering the lens from the entry faces of the grooved facets and to reflect the received light to the exit face (151).

Regarding claim 15, a *generally* rectangular TIR lens (e.g., Figures 15-17) having dimensions of a rectangular section of length defined according to a defining complete circular TIR lens extend from a center to a peripheral edge of the defining complete circular TIR lens (e.g., Figures 17-17A).

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Suehiro (USPN 6,641,287) – reflective type light-emitting diode

Suehiro et al. (USPN 6,729,746) – light source device

Suehiro et al. (USPN 6,953,265)- light source device

Fleury (USPN 6,830,359) – illuminating or indicating device

Albou (USPN 6,997,587) – screen less elliptical illumination module producing an illumination beam with cutoff and lamp comprising such a module

Ishida et al. (USPN 6,948,836) – light source unit having orthogonally disposed semiconductor light emitter

Ishida et al. (US 2004/0125614) – headlamp for vehicle

Natsume (USPN 6,848,820) – vehicular lamp employing LED light sources

Sugimoto et al. (US 2004/0190304) – light emitting device using LED

Perlo et al. (USPN 6,554,455) – lighting device, particularly a motor vehicle light

Koppolu et al. (USPN 5,471,371) - high efficiency illuminator

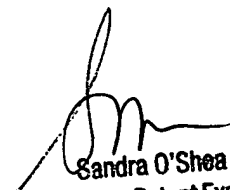
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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Y. Choi whose telephone number is (571) 272-2367. The examiner can normally be reached on Monday-Friday (10:00-7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JC



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